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| 09/315,713 | 05/20/1999 | AKIO OHBA | SCEI-16.084 | 6857 |

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HELFGOTT & KARAS P C
EMPIRE STATE BUILDING
60TH FLOOR
NEW YORK CITY, NY 101180110

| EXAMINER |
|---|
| PATEL, KANJIBHAI B |

| ART UNIT | PAPER NUMBER |
|---|---|
| 2621 | |

DATE MAILED: 02/27/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

| Application No. | Applicant(s) |
|---|---|
| 09/315,713 | AKIO OHBA |
| **Examiner** | **Art Unit** |
| Kanji Patel | 2621 |

*-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --*

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *THREE* MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136 (a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

1) ☒ Responsive to communication(s) filed on *Dec 6, 2001* .

2a) ☐ This action is **FINAL.** 2b) ☒ This action is non-final.

3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11; 453 O.G. 213.

**Disposition of Claims**

4) ☒ Claim(s) *1-27* is/are pending in the application.

4a) Of the above, claim(s) _____ is/are withdrawn from consideration.

5) ☐ Claim(s) _____ is/are allowed.

6) ☒ Claim(s) *1-27* is/are rejected.

7) ☐ Claim(s) _____ is/are objected to.

8) ☐ Claims _____ are subject to restriction and/or election requirement.

**Application Papers**

9) ☐ The specification is objected to by the Examiner.

10) ☐ The drawing(s) filed on _____ is/are objected to by the Examiner.

11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved.

12) ☐ The oath or declaration is objected to by the Examiner.

**Priority under 35 U.S.C. § 119**

13) ☒ Acknowledgement is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d).

a) ☒ All b) ☐ Some* c) ☐ None of:

1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____ .
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

*See the attached detailed Office action for a list of the certified copies not received.

14) ☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. § 119(e).

**Attachment(s)**

15) ☒ Notice of References Cited (PTO-892)

16) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

17) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s). _____

18) ☐ Interview Summary (PTO-413) Paper No(s). _____

19) ☐ Notice of Informal Patent Application (PTO-152)

20) ☐ Other:

*Response to Amendment*

1. Applicant's amendment filed on December 06, 2001 has been entered and made of record.

Drawing correction filed on 12/6/01, has been approved.

Applicant's arguments with respect to claims 1-27 have been considered but are moot in view of the new ground(s) of rejection.

*Specification*

2. The disclosure is objected to because of the following informalities:

Pages 7-8, lines 3-4 have incorrect line spacing.

Page 13, line 6, change "320 240 " to --320X240-- and "640 480 " to --640X489--.

Page 18, lines 4-6, remove " } ".

Page 28, line 4, remove " } ".

Page 26, line 6, change "3 3" to -- 3X3--.

These are some of the typographical errors. The applicant is advised to take care of the any mistake still found in the disclosure.

Appropriate correction is required.

*Claim Rejections - 35 USC § 103*

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are

such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 1-27 are rejected under 35 U.S.C. 103(a) as being unpatentable over the prior art (Figs. 1-5; Pages 1-5 of the specification ) admitted by applicant in view of Kawasaki (US 6,246,414).

Regarding claims 1, 8 and 9, the admitted prior art system discloses an image processing device comprising:

a first storage (figure 1, element 11) means for storing source image (figure 3) data in units of pixels;

a second storage (figure 1, element 21) means for storing destination image (figure 5) data in units of pixels;

a rendering means for performing an action of applying a stipulated pixel-unit operation to the source image data stored in said first storage means and rendering the data as destination image data in the second storage means in units repeatedly until a stipulated arithmetic result is obtained (figure 2; page 2 line 3 to page 5 line 20).

Regarding claims 1 and 8-9, the prior art system differs in that the rendering data is not in units of polygons. However, in the same field of endeavor, Kawasaki discloses an image processing system in which a polygon dividing section divides each of the set of polygons into new polygons based on the reference data and average unit normal vectors which are obtained by averaging normal vectors of planes contacting each of apexes of each of the set of polygons to

have a unit magnitude as shown in column 3, lines 45-59. He further shows in figure 4, at a step S18, the polygon data for a set of polygons is inputted, each of which ha three-dimensional coordinates, an average unit normal vector and a texture mapping address. Then, the coordinates of each of the set of polygons are converted by the coordinate converting section 14. The polygon is further divided if there may be the possibility that the brightness within the polygon largely changes (steps S19 and S20). At a step S21, the brightness of each of the apexes of the polygon is calculated by the brightness calculating section 18 on the basis of the distance between the polygon and the point light source and the angle of the normal vector. At step S22, the polygon is projected onto the screen viewed from a viewpoint and the processes at the steps S18 to S22 are executed in units of polygons as shown by Kawasaki in column 6 line 60 to column 7 line 37. Therefore, it would have been obvious to one of ordinary skill in the art to use units of polygons in calculating the destination data or only calculating at the respective apexes of the divided polygons as taught by Kawasaki to modify the prior art system in order to improve the processing speed extremely as shown by Kawasaki in column 9, line 46-49.

Note: Kawasaki has a Foreign Application Priority Data -- Nov. 17, 1997 which is prior to applicant's effective filing date of 5/20/98 and therefore it is a prior art.

Regarding claims 2, 11 and 20, the prior art system shows the source image data stored in said first storage means is image data output from a video camera (figure 1, element 1).

Regarding claims 3, 12 and 21, the prior art further comprising specification means for specifying an operation mode between said source image data and said destination image data (page 2, lines 3-18).

Regarding claims 4, 13 and 22, the prior art system shows the specification means specifies as said operation mode either a first mode wherein said source image data is added to said destination image data (page 3, lines , or a second mode wherein said source image data is subtracted from said destination image data (page 2 line 3 to page 5 line 20).

Regarding claims 5, 14 and 23, the prior art shows the specification means further specifies as said operation mode a third mode wherein said source image data is stored as said destination image data in said second storage means (figure 1, element 21).

Regarding claims 6, 15 and 24, the prior art teaches the stipulated operation is one of convolution filtering, pyramid filtering, interframe differencing, interimage distance computation, Hough transformation, motion blurring or bilinear interpolation (page 2, lines 3-6).

Regarding claims 7, 16 and 25, Penna discloses the image processing device wherein said image processing device is a computer entertainment device (column 4, lines 11-16; note that a television receiver corresponds to an entertainment device broadly).

Regarding claim 10, the admitted prior art system discloses an image processing device comprising:

storage means comprising a first storage unit (figure 1, element 11) that stores source image (figure 3) data in units of pixels and a second storage unit (figure 1, element 21) that stores destination image (figure 5) data in units of pixels;

a generation means that generates rendering commands (figure 1, element 5; rendering commands are supplied by the CPU 5) that cause the action of applying a stipulated pixel-unit operation to the source image (figure 3) data stored in said first storage means (figure 1, element 11) and rendering the data as destination image (figure 5) data in the second storage means (figure 1, element 21) in units to be performed repeatedly until a stipulated arithmetic result is obtained (figure 2; page 2 line 3 to page 5 line 20); and

an execution means that executes rendering commands generated by said generation means (figure 1, element 5; page 1 line 23 to page 2 line 2).

Regarding claim 10, the prior art system differs in that the rendering data is not in units of polygons. However, in the same field of endeavor, Kawasaki discloses an image processing system in which a polygon dividing section divides each of the set of polygons into new polygons based on the reference data and average unit normal vectors which are obtained by averaging normal vectors of planes contacting each of apexes of each of the set of polygons to have a unit magnitude as shown in column 3, lines 45-59. He further shows in figure 4, at a step S18, the polygon data for a set of polygons is inputted, each of which ha three-dimensional coordinates, an average unit normal vector and a texture mapping address. Then, the coordinates of each of the set of polygons are converted by the coordinate converting section 14. The polygon is further

divided if there may be the possibility that the brightness within the polygon largely changes (steps S19 and S20). At a step S21, the brightness of each of the apexes of the polygon is calculated by the brightness calculating section 18 on the basis of the distance between the polygon and the point light source and the angle of the normal vector. At step S22, the polygon is projected onto the screen viewed from a viewpoint and the processes at the steps S18 to S22 are executed in units of polygons as shown by Kawasaki in column 6 line 60 to column 7 line 37. Therefore, it would have been obvious to one of ordinary skill in the art to use units of polygons in calculating the destination data or only calculating at the respective apexes of the divided polygons as taught by Kawasaki to modify the prior art system in order to improve the processing speed extremely as shown by Kawasaki in column 9, line 46-49.

For claims, 17-18, see the rejection of at least claims 1 and 8-9, in which rendering commands are generated by CPU 10 in figure 1.

Regarding claims 19 and 26-27, the admitted prior art discloses an image processing method in an image processing device including a first storage means (figure 1, element 11) that stores source image (figure 3) data in units of pixels, and a second storage means (figure 1, element 21) that stores destination image (figure 5) data in units of pixels, the image processing method comprising:

a first rendering step wherein one portion of the operations among some stipulated pixel-unit operations are performed on the source image data stored in said first storage means and the

data is rendered as destination image data in the second storage means (page 1 line 12 to page 5 line 16); and

a second rendering step wherein another portion of the operations among some stipulated pixel-unit operations are performed on the source image data stored in said first storage means, this data is added to or subtracted from the image data already rendered in said first rendering step and the data is rendered as destination image data in the second storage means (page 1 line 12 to page 5 line 16);

Regarding claims 19 and 26-27, the prior art system differs in that the rendering data is not in units of polygons. However, in the same field of endeavor, Kawasaki discloses an image processing system in which a polygon dividing section divides each of the set of polygons into new polygons based on the reference data and average unit normal vectors which are obtained by averaging normal vectors of planes contacting each of apexes of each of the set of polygons to have a unit magnitude as shown in column 3, lines 45-59. He further shows in figure 4, at a step S18, the polygon data for a set of polygons is inputted, each of which ha three-dimensional coordinates, an average unit normal vector and a texture mapping address. Then, the coordinates of each of the set of polygons are converted by the coordinate converting section 14. The polygon is further divided if there may be the possibility that the brightness within the polygon largely changes (steps S19 and S20). At a step S21, the brightness of each of the apexes of the polygon is calculated by the brightness calculating section 18 on the basis of the distance between the polygon and the point light source and the angle of the normal vector. At step S22, the polygon is

projected onto the screen viewed from a viewpoint and the processes at the steps S18 to S22 are executed in units of polygons as shown by Kawasaki in column 6 line 60 to column 7 line 37. Therefore, it would have been obvious to one of ordinary skill in the art to use units of polygons in calculating the destination data or only calculating at the respective apexes of the divided polygons as taught by Kawasaki to modify the prior art system in order to improve the processing speed extremely as shown by Kawasaki in column 9, line 46-49.

**Other prior art cited**

**4.** The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Kikuchi (US 5,581,673) discloses a method and device for dividing and drawing polygons.

**Contact information**

5. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kanji Patel whose telephone number is (703) 305-4011. The examiner can normally be reached on Monday through Friday from 8:30 a.m. to 5:00 p.m.

If attempts to reach the examiner by phone are unsuccessful, the examiner's supervisor, Leo Boudreau, can be reached on (703) 305-4706.

Any inquiry of a general nature or relating to the status of this application should be directed to the group receptionist whose telephone number is (703) 306-0377.

The fax number for this group is (703) 872-9314.

Kanji Patel
Patent Examiner
Group Art Unit 2621
February 20, 2002

LEO BOUDREAU
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2600